

## Big Hole Watershed Committee

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January 18 2007

Long Range Planning Subcommittee  
c/o Department of Natural Resources and Conservation  
Resource Development Bureau  
P.O. Box 201601  
Helena, MT 59620-1601

Re: RRGL Review – Big Hole Ditch Improvement Project

Greetings:

The purpose of this letter is to inform the RRGL Review Panel that the Big Hole Watershed Committee has dedicated \$5,000 in cash match to the Big Hole Ditch Improvement Project. This decision was made at our September 20, 2006 monthly meeting, whose minutes are available for review.

Improvement of archaic or non functioning irrigation structures and systems ranks high on our list of priority projects for the Big Hole River and was recently forwarded to the full BHWC by subcommittee as one of the 3 top priorities for the lower river reach downstream from Divide.

Sincerely,

Noorjahan Parwana  
Executive Director

### Proposed Funding Sources

Name of Funding Source	Amount			
	Grant (\$)	Loan (\$)	Other (\$)	Total (\$)
A. Renewable Resource Program	\$99,355 (pending)			\$99,355
B. Landowner			\$26,000 (secured)	\$26,000
C. DNRC- Water Measuring Device Program	\$4,000 (secured)			\$4,000
D. Big Hole Watershed Committee			\$5,000 (secured)	\$5,000
E. DNRC-HB223 Program	\$13,000 (pending)			\$13,000
F. Trout Unlimited Embrace-A-Stream Program	\$3,500 (pending)			\$3,500
G. Montana Fish, Wildlife & Parks Future Fisheries Program	\$3,500 (if required)			
H.				

Estimated total project cost is \$144,958 (refer to application, page 2). As indicated in this table, \$30,000 has been secured and \$115,855 in grant funding is pending, including this request.

#### 14. Proposed Funding Sources

Enter the source and amount of all funding that may be used for this project. For each source, indicate the amount of funding in the appropriate column: grant, loan, or any other source including cash reserves. Total the amount for each source. Indicate all potential sources of funds that may apply to this project. The fact that you have not yet applied for the funds or have not yet received a commitment from the source does not matter. The total amount of the proposed funding may be greater than the estimated total project cost indicated below.

Name of Funding Source	Amount			
	Grant (\$)	Loan (\$)	Other (\$)	Total (\$)
A. Renewable Resource Program	\$99,355			\$99,355
B. Bureau of Reclamation or DNRC	\$18,353			\$18,353
C. Big Hole Watershed Committee			\$1,250	\$1,250
D. Landowner			\$26,000	\$26,000
E.				
F.				

#### 15. Estimated Total Project Cost \$144,958

This total includes Engineers Cost Estimate, Administrative Fee (5%), and cost of preliminary design. (5%)

If the project is a phased project or to be completed over a long period of time, please list all phases and sources of funding. **N/A**

Phase/Date	Cash Source	Cash Source	In-Kind Source	Total
N/A				

## Environmental Narrative

**Applicant Name**     **Beaverhead Conservation District**

**Project Title**        **Big Hole Ditch Improvement Project**

The goals of the Big Hole Ditch Improvement Project will improve, protect or maintain the following environmental resources: Water quality and water quantity, fisheries, and wetland resources and associated wildlife habitat.

Several alternatives to the preferred alternative were evaluated. Construction of Interstate 15 over the ditch precludes ability to relocate the ditch since the cost would be excessive. Lining the ditch or running it through a pipe would have negative implications on several existing environmental resources, including: Existing wetlands and wildlife habitat have developed over the past 100 years as a result of the ditch; Data from the Montana Bureau of Mines and Geology, the DNRC, and USGS streamflow gauges suggest return flows to the Big Hole River are maintained and augmented by the ditch.

Improvement of existing structures is the alternative that is considered the most cost effective while also taking into consideration important environmental concerns the ditch currently supports.

Water Quality and Quantity: This stretch of the Big Hole River is classified as "water quality limited" for siltation, temperature, and dewatering. Breaching of the Big Hole Ditch is a potential source of sediments load to the river. The landowner has documented 12 ditch failures from 1980 – 2004. The goal of this project is to prevent breaching during high- water events. One of the purposes of the project is to improve surface water management and to reduce risk of ditch failure.

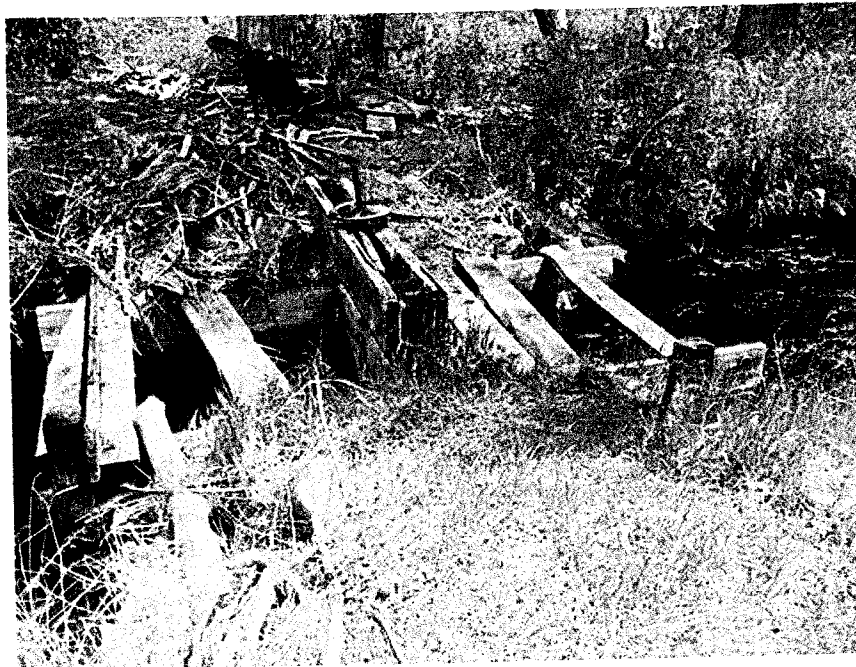
The Big Hole River was threatened to be listed as "chronically dewatered" in 1994. Well log data from the Montana Bureau of Mines and Geology suggest return flow from ditch leakage and flood irrigation supplements late-season in-stream flows.

Water temperatures are influenced by the amount of water in the stream. Hydrographs in the Big Hole River suggest an increase as much as 50 cfs in late summer downstream from the Big Hole Ditch compared to at the Big Hole Ditch. Since tributaries have minimal flows, most of this increased flow is from return flow suggesting this ditch contributes a major portion of these return flows.

Fisheries: The project should benefit the fishery in the Big Hole River directly by preventing entrainment and providing for fish passage to fish captured by the ditch. Indirectly, the fishery will benefit by improved flows due to increased water management capability and reduced risk from sediment loading as a result of ditch failure.

Reference to specific studies and sources is provided in the Environmental Checklist below.

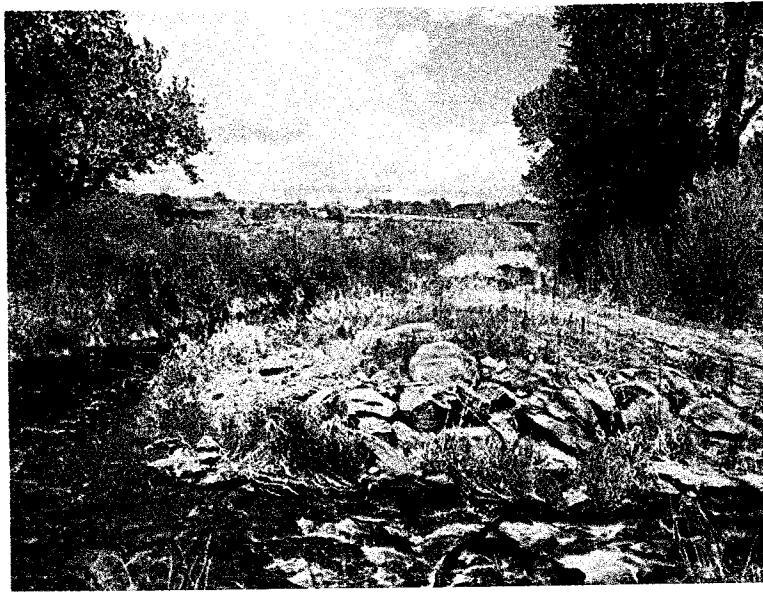




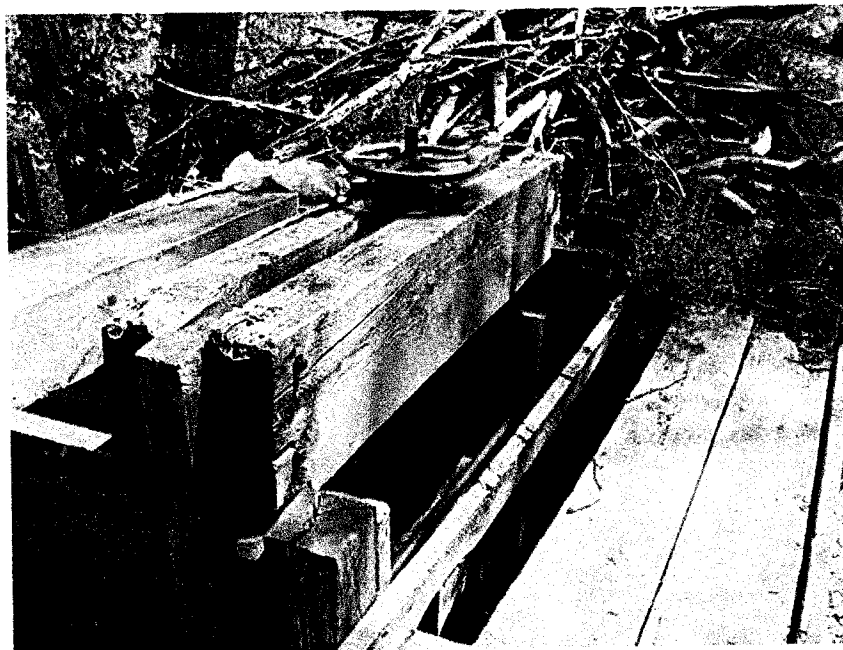
**Site 1. Headgate at Rock Creek is a fish barrier and does not provide adequate control of water (leaky headgate).**



**Ditch upstream from site 1 is often blocked by beaver leading to danger of breach into Big Hole River directly below (to right). A redesigned control structure at site 1 would prevent Rock Creek water from backing up into ditch, allowing the ditch to dry during non-irrigation season (currently not possible) eliminating that problem altogether.**



**Site 1. Overflow structure at Rock Creek. Ditch and creek intercept at this location. Interstate visible in background. Rock Creek flows up into Big Hole Ditch as far as the interstate. Therefore the ditch holds water whether or not irrigation is occurring. This situation permits beaver and muskrat to winter in the ditch and create overflow or breach situations in the ditch wall.**



**Site 4. View of upper control structure. Leaky headgate provides little control of water at this structure and serves as fish passage barrier. Most importantly, this structure must withstand huge flow pressures (note size of diversion in site 6 photo).**



**Site 2. Big Hole Ditch entering 384-foot culvert beneath Interstate 15**



**Site 3. Proximity of Big Hole Ditch to Big Hole River threatens water quality and public safety in the event of a breach.**





**Site 3. Spillway at site 3 which serve to relieve ditch of excess flow.**



**Site 4. Headgate at top of ditch is in danger of washing out. Design will provide for fish passage and modification of site will reduce danger to floaters.**